

14. FARE COLLECTION EQUIPMENT

To lower dwell time and improve operating speeds and corridor travel time, the sbX system has adopted a proof-of-payment or at-station payment approach by means of off-board fare collection.

This barrier free proof of payment fare collection system to be used as part of the sbX system will interface with the existing bus system. No additional barriers will be installed at the stations and proof of payment will be required at all times when riding the sbX system. Patrons shall board and exit the sbX vehicles using all doors during stops at each station.

A proof of payment system requires that fare media inspections take place to enforce the proof of payment criteria. If a patron cannot provide proof of payment or a reasonable explanation of why they had not purchased a ticket, the inspector has several options, one of which is the issuing of fines or citations.

Ticket Vending Machines (TVM) and Stand Alone Validators (SAV) will be located at all stations. TVMs will issue tickets and SAVs will be used to activate prepaid tickets and passes. These devices will be at entrances to the stations. Each station platform will typically have two TVMs and one SAV.

14.1 Fare Structure

One day, 7-day and 31-day rolling period passes are currently available for use on the Omnitrans bus system. Discount fares for Seniors, Disability, Medicare and Student patron categories are available with proof of eligibility. Children that are 46" tall or less, ride free of charge, with a limit of two free of charge children per paying patron.

Exact change is currently required when boarding the bus, but in the future all passengers will use a pass rather than cash on the bus. For this reason, TVMs should be located at all transit centers and major transfer points in the future.

14.2 Proof of Payment Enforcement

A ticket inspection operation should be implemented to check approximately 20 to 30% of the daily BRT ridership. This percentage falls within norms accepted by other transit agencies in North America. Procedures can be developed to check everyone boarding at any one station or between stations or any variety of circumstances.

Ticket inspection techniques can be employed in a variety of ways. Inspectors can be located on the vehicle after doors close. Once onboard, the inspector is expected to inspect each patron. Asking for tickets and walking up and down the aisle can be a method to check everyone on the vehicle at any time. All passengers departing buses can be asked for proof of payment as well. Any area defined as a fare paid area, is open to inspection, including boarding platforms.

Riders must have in their possession, valid fare media for a visual or machine read inspection. The visual inspection will be enabled by ticket stock with date and time stamped on the ticket. The visual inspection process will confirm the valid proof of payment of those passes; these can be color-coded or have special graphics preprinted on them for identification purposes.

The machine readable inspection will be performed using a handheld device to read all valid fare media. This device will provide an audible signal for a valid pass and display the period of validity information. The handheld fare media reader will be a small portable unit equivalent in size to a PDA class device, and will have a commercially available rechargeable battery, which is easily replaceable in the field. The primary function of the device is to allow fare inspectors to check that passengers have a valid proof-of-payment encoded on their magnetically encoded ticket.

14.3 Ticket Vending Machines

Ticket vending machines will be capable of dispensing passes from up to four types of stock. Any combination of stock will be used to dispense passes.

The ticket vending machines will allow payment using credit/debit cards. The vending machines shall be upgradeable to include ticket purchase using coins using nickels, dimes, quarters, Susan B. Anthony and Sacagawea dollar coins, and bank notes using \$1, \$5, and \$10 or \$20 bills.

Payment receipts will be dispensed upon request. Instructions will be provided in English, Spanish and will also meet ADA standards for those passengers with visual impairment.

A bankcard processor (BCP) shall be provided in each TVM. The BCP shall consist of a bankcard reader, a PIN pad and card control electronics. It shall be capable of processing all electronic payment media accepted by the TVM, including, credit, debit and check cards.

Ticket vending machines will be capable of communicating with central processing equipment to provide monitoring of the equipment operation, financial auditing functions and the ability to download information and data.

TVMs will also be capable of expansion of fare media for the use of SMART cards acceptable to the existing fare collection system on local bus vehicles.

As shown in Figure 16.1, typical dimensions of the TVM are 32" wide x 24" deep, with a height of 72" inches.

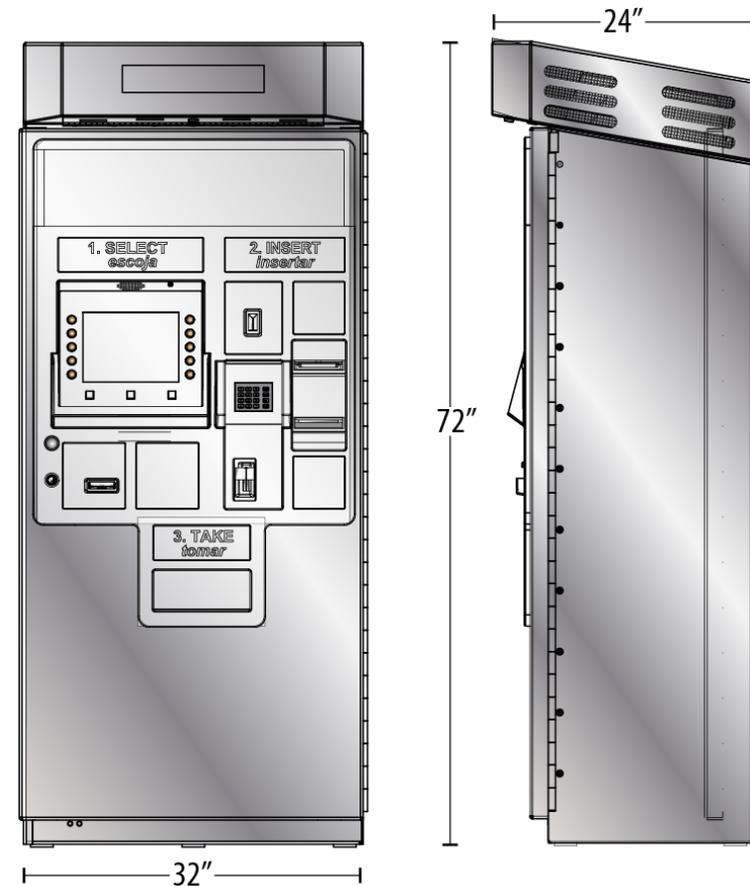


Figure 14-1: Typical Ticket Vending Machine Dimensions

14.4 Stand Alone Validators

Stand Alone Validators (SAV) will also be used for activation of tickets that have been pre-purchased. SAVs do not accept cash in any form and are simply electronic devices to read and/or write to magnetic stripes located on ticket stock. They also print on the ticket stock, information contained on the magnetic stripe such as, passenger category, date of validation, type of pass, and

expiration date and time. Station of validation is also indicated. The function of the SAV will be to determine if cards are authentic and have proper value (within time limits) for the trip taken. SAVs will be connected to the central processing equipment to provide monitoring of operation and storage of data.

Dimensions of the SAV are 21" wide x 24" deep, with a height of 60".

14.5 Central Processing Equipment

The TVMs and SAVs will send messages and data to fare collection central processing equipment via a carrier transmission system to report activities and the status of the equipment, and to store data. The station equipment will be capable of being polled at any time for requested information. The central processing equipment will be capable of downloading information and data to the station equipment.

14.6 Passenger Interfaces

Instructions for use of TVMs and SAVs will be available in English and Spanish to guide patrons in making appropriate transactions. Braille characters and audio instructions will also be available to assist visually impaired patrons.

There will be an interface between riders and the TVMs in the form of a screen mounted on the front panel of the TVM. Directions will be given as to passenger category, type of pass, number desired and the required amount of money to insert. As money is inserted the total will decrement indicating the amount remaining to be inserted. Upon payment of the correct fare, instructions will be given to pick up tickets and/or change in the ticket tray. Other important system wide information can also be presented on this screen, as necessary.

Passengers shall make selections of pass categories by either making a touch screen selection, or by pressing a button located on the faceplate of the TVM. The same process is repeated for type of pass and the number of passes required.

14.7 Security

The design of the Fare Collection System shall discourage and minimize the effects of vandalism and theft, prevent unauthorized access to the interior of the TVMs and SAVs, and prevent unauthorized removal of the equipment from its installed location. Access to the equipment by authorized personnel equipped with proper keys and individual access code(s) shall be provided.

All TVMs and SAVs shall have security systems which shall indicate an intrusion attempt by providing an audible alarm at the site and by sending an alarm message to the central processing equipment. All TVM's and SAVs shall have a dedicated CCTV camera.

Access to the fare collection system network, its station and central processing equipment shall be secure, in that unauthorized users shall not be able to alter or view data.

14.8 Alarm Reporting Requirements

The TVMs and SAVs will report security, maintenance and revenue alarms to the fare collection central processing equipment. Security alarms reported will include alarms such as intrusion door opened, door closed, and cashbox removal indications. The maintenance alarms will consist of alarms that report on all abnormal or degraded conditions of station equipment. Revenue activities that are reported to the central processing equipment shall include the removal or addition of either ticket stock or cash.

14.9 Other System Requirements

Debit/Credit Network – The central processing equipment connects to a debit/credit network to allow fare media purchase transactions at the TVMs to be paid by debit or credit cards. The debit/credit network communicates with the central processing equipment via a carrier transmission system. PIN encryption devices are part of the fare collection system equipment to decrypt and encrypt the PIN of the debit/credit cards.

14.10 Maintenance and Servicing

Maintenance of equipment will be required to correct malfunctions such as jammed coins or bills, and out of ticket

stock conditions. A variety of other inoperable components will require that maintenance staff have access to the systems needing maintenance actions. The equipment shall be designed to provide different levels of access to the interior of the equipment and money containers by maintenance personnel, revenue servicing personnel, and money processing personnel at the revenue-counting facility.

14.11 Access Control

Separate keys will be required to access the different levels of the equipment interior. Keys to all money containers are limited to the revenue crews, and the maintenance supervisor. There will be no such thing as one master key that opens all locks.